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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,492	11/19/2003	Edwin W. Albers	TMC0301	4508
7590 01/25/2005 Dr. Edwin W. Albers 1922 Benhill Avenue Baltimore, MD 21226			EXAMINER HERTZOG, ARDITH E	
			ART UNIT 1754	PAPER NUMBER
DATE MAILED: 01/25/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/715,492

Applicant(s)

ALBERS ET AL.

Examiner

Ardith E. Hertzog

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-22 and 24-36, now renumbered 19-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 30 is/are allowed.
- 6) ☒ Claim(s) 19-29 and 31-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

1. This action is in response to applicant's "Amendment and Response" filed November 29, 2004. New claims 19-22 and 24-36, per said amendment, are pending.

**However:**

2. The numbering of claims is not in accordance with 37 CFR § 1.126, which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are cancelled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered **consecutively** beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Thus, **misnumbered claims 24-36 have been respectively *renumbered* 23-35, so the following action concerns new claims 19-35.** In addition:

3. Applicant's amendment is objected to under 35 U.S.C. § 132, because it introduces **new matter** into the disclosure. 35 U.S.C. § 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows (all p. and line references being to the clean copy of the substitute specification):

a. At page 2, line 27, the insertion of "for example", since such insertion broadens the scope of the disclosed "elevated process temperature" range and appears to find no basis in the disclosure as originally filed.

b. At page 3, lines 4-5, the phrase "in amounts for example of about 50 to 500

ppm", since the corresponding disclosure re these specific amounts was not present in the original specification (see crossed out line in first full paragraph of original p. 3). It is suggested that this phrase be replaced with "in an effective amount" (per original p. 3, first full paragraph).

c. At page 3, lines 24-25, the replacement of "either" with "at least one of" and of "rarely" with "sometimes", since such replacement broadens the scope of the disclosed values of "X" and appears to find no basis in the disclosure as originally filed.

d. At page 4, line 16, the insertion of "preferably", since such insertion broadens the scope of when the disclosed "hydrothermally stable inorganic binder" is used and appears to find no basis in the disclosure as originally filed.

e. At page 4, line 27, the replacement of "comprising" with "such as", since such replacement broadens the scope of the disclosed suitable "surfactant" and appears to find no basis in the disclosure as originally filed.

f. At page 6, line 11, the insertion of "preferably", since such insertion broadens the scope of when the disclosed "hydrothermally stable inorganic binder" is used and appears to find no basis in the disclosure as originally filed.

4. Applicant's statement that "[t]his substitute specification does not introduce any prohibited new matter and is therefore enterable" (see remarks accompanying amendment at p. 7, second paragraph) has been carefully considered, however the examiner must respectfully disagree, for those reasons given in points a.-f. above, noting that applicant has not pointed out where these insertions and replacements are supported in the

disclosure as originally filed. **Applicant is required to *cancel* the new matter in any reply to this Office Action.**

5. In view of the new declaration submitted by applicant, the application is **no longer** objected to, as set forth in paragraph 2. of the prior Office action with mailing date of September 8, 2004 (hereinafter, "the 9/8/04") action.

6. The objection to the disclosure, as set forth in paragraph 3. of the 9/8/04 action, **specifically points c. and g.-m.**, has been **overcome/rendered moot** by amendment. Upon reconsideration, the objection to the disclosure—specifically, the abstract (per **point a.** of paragraph 3. of the 9/8/04 action), has been **withdrawn**, since applicant did not choose to correct same in the substitute specification (noting that "chlorite-like" no longer appears in any claim). Upon reconsideration, the objection to the disclosure—specifically, the specification misspellings (per **points b. and d.** of paragraph 3. of the 9/8/04 action), has been **withdrawn**, since applicant did not choose to correct same in the substitute specification (noting that the corresponding misspellings no longer appear in any claim). Lastly, the objection to the disclosure, per **point f.** of paragraph 3 of the 9/8/04 action, has been **withdrawn**, since applicant did not choose to correct same in the substitute specification, **and** since, as stated in MPEP § 608.01(m), "If, at the time of allowance, the quoted terminology [(i.e., 'The invention claimed is' (or the equivalent))] is not present, it is inserted by the Office of Patent Publication". **However**, note the **maintained/new** objection to the disclosure made in response to the amendment, as set forth in paragraph 14. below.

7. The objection to the specification, as set forth in paragraph 4. of the 9/8/04 action,

**specifically points b. and c.**, has been **overcome/rendered moot** by amendment; so **also** has the related improper incorporation by reference issue set forth in paragraph 5. of the 9/8/04 action. **However**, note the **maintained/new** objection to the specification made in response to the amendment, as set forth in paragraph 15. below.

8. The 35 U.S.C. § 112, second paragraph, rejections, as set forth in paragraphs 7., 8. and 10. of the 9/8/04 action, have been **overcome** by amendment, while that set forth in paragraph 9. of the 9/8/04 action (re the term “predominantly”, considered equivalent to the term “predominant proportion of”, as recited in new claim 29) has been **withdrawn** in view of applicant’s arguments (see remarks accompanying amendment at p. 7, third paragraph). **However**, note the **new** 35 U.S.C. § 112, second paragraph, rejections made in response to the amendment, as set forth in paragraphs 19. and 20. below.

9. The 35 U.S.C. § 102(b) rejection of claims 11 and 17 as being anticipated by Albers et al. (US 5,928,496, hereinafter “Albers et al. ‘496”), as set forth in paragraph 13. of the 9/8/04 action, has been **overcome/rendered moot** by amendment, there being no new claim of the same scope as original claims 11 and 17.

10. **Similarly**, the obviousness-type double patenting rejection of claims 11 and 17 as being unpatentable over claim 1 of Albers et al. ‘496, as set forth in paragraph 23. of the 9/8/04 action, has been **overcome/rendered moot** by amendment, there being no new claim of the same scope as original claims 11 and 17.

11. The 35 U.S.C. § 103(a) rejection of claim 16 based upon the combination of applicant’s admitted prior art, Wright et al. (US 3,963,602, erroneously referred to as “Wright et al. ‘362” in the 9/8/04 action, as correctly ascertained by applicant), Albers et al.

Art Unit: 1754

'496 and WO 99/19251, as set forth in paragraphs 18.-19. of the 9/8/04 action, has been **overcome/rendered moot** by amendment, there being no new claim of the same scope as original claim 16.

12. The 35 U.S.C. § 103(a) rejection of claims 1, 2, 7-9 and 12 as being unpatentable over applicant's admitted prior art in view of Wright et al. (US 3,963,602, hereinafter "Wright et al. '602"), as set forth in paragraphs 14.-15. of the 9/8/04 action, has been **overcome/rendered moot** by amendment. Specifically, there are no new claims of the same scope as original claims 1, 2 and 7-9, while claim 12 has been cancelled.

**Moreover**, although new claim 30 is similar in scope to original claim 12, it has **not** been rejected upon prior art grounds, for those reasons discussed in paragraph 24. below.

13. The 35 U.S.C. § 103(a) rejection of claims 3-6, 10 and 13-15 based upon the combination of applicant's admitted prior art, Wright et al. '602 and Albers et al. '496, as set forth in paragraphs 16.-17. of the 9/8/04 action, has been **overcome/rendered moot** by amendment. Specifically, there are no new claims of the same scope as original claims 3-6 and 10, while claims 13-15 have been cancelled. **Moreover**, although new claims 31 and 32 are (somewhat) similar in scope to original claims 13 and 14, they have **not** been rejected upon prior art grounds, for those reasons discussed in paragraph 24. below.

***Minor Informalities – Disclosure/Specification***

14. The disclosure is objected to, because of the following minor informalities:

- a. Analogous to point e. of paragraph 3. of the 9/8/04 action, on page 12, the next to last paragraph, in the last two lines, the recited weight ratio of "about 10:90 to 90:0 chlorite:hydrotalcite" (emphasis added) is not understood; what comprises

Art Unit: 1754

the remainder of the “**mixture** of magnesia-rich chlorite and hydrotalcite” (as recited earlier in the paragraph, emphasis added) when the hydrotalcite is **not** present? It is suggested that “0” be replaced with “10”, per new claims 33 and 35 (basis being found, for example, in the paragraph bridging pp. 2-3 of the specification).

b. In the preamble of **each** of claims 20-25, it is suggested that “improved process of sulfur oxide adsorption” be revised as “process of sulfur oxide sorption”, for consistency with claim 19 (upon which these claims ultimately depend).

Appropriate correction of both the above is required.

### ***Specification***

15. The specification remains objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR § 1.75(d)(1) and MPEP § 608.01(o). Analogous to point a. of paragraph 4. of the 9/8/04 action, clear antecedent basis for the following claim limitation has not been found in the specification: that the “solid sorbent material contains **hydrotalcite comprising a predominant proportion of magnesia**” (emphasis added), as recited in new claim 29. Clarification and/or appropriate correction is required.

### ***Claim Rejections - 35 U.S.C. § 112***

16. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. Claims 19-29 and 33-35 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. It is respectfully submitted that



the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. This is a **new matter** rejection. With respect to new independent claim 19 (upon which claims 20-25 ultimately depend), it is not seen where the originally filed disclosure supports the limitations beginning with “**and** where said sorbent material comprises a chlorite layered structure...” (emphasis added) through the end of the claim. In particular, it appears that the sole section of the originally filed disclosure relating to the “absorbed” and “desorbed” conditions recited at the end of claim 19 is in Example 1 on page 11—**however**, in this example, chlorite is used **alone, not in combination with** “at least one crystalline material comprising layers of brucite structure” (i.e., such as applicant’s preferred hydrotalcite), as recited in claim 19. Similarly, with respect to new independent claim 26 (upon which claims 27-29 depend), it is not seen where the originally filed disclosure supports the limitations recited in the last clause of the claim—namely, that “said desorbed phyllosilicate layered absorbent material [is used] **in combination with** hydrotalcite” (emphasis added). In particular, it appears that the sole section of the originally filed disclosure relating to the “first pass” and “second pass” conditions recited at the end of claim 26 is in Example 1 on page 11—**however**, in this example, chlorite is used **alone, not “in combination with hydrotalcite”** (emphasis added), as recited in claim 26. Analogously, with respect to new independent claim 33, it is not seen where the originally filed disclosure supports the limitations recited in the “wherein at least” clause of the claim. In particular, it appears that the sole section of the originally filed disclosure relating to the “absorption” and

“desorption” conditions recited at the end of claim 33 is in Example 1 on page 11—but again, in this example, chlorite is used **alone, not in combination with** “hydrotalcite”, as required by claim 33. With respect to new independent claim 34 (upon which claim 35 depends), it is not seen where the originally filed disclosure supports the limitations recited in the last three lines of the claim. In particular, it appears that the sole section of the originally filed disclosure relating to the “desorption” and “recycling” conditions recited at the end of claim 34 is in Example 1 on page 11—however, in this example, **only** chlorite is used, **not** “at least one magnesia-rich crystalline material having a layered structure comprising layers of brucite” (i.e., such as applicant’s preferred hydrotalcite), as required by claim 34. Indeed, it is not seen where the originally filed disclosure supports these “desorption” and “recycling” steps for applicant’s “at least one magnesia-rich crystalline material having a layered structure comprising layers of brucite” (i.e., such as applicant’s preferred hydrotalcite). Lastly, it is not seen where the originally filed disclosure supports the limitations of claim 25—namely, that the “at least one chlorite and at least one hydrotalcite **collectively** contain... about 14 to 29 wt.% magnesia” (emphasis added). In contrast, note that original claim 6 required “chlorite [(i.e., **alone**)] containing about 14 to 29 wt.% magnesia”, as disclosed at page 2, lines 21-23. Clarification and/or appropriate correction of all aspects of this rejection is required.

18. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

19. Claims 21, 24, 29, 31 and 32 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. Said claims are considered vague, indefinite, and/or confusing, primarily due to antecedent basis problems. There is no basis for "said **absorbent**" (emphasis added), as recited in line 2 of claim 21, either in claim 21 itself or claim 19 (upon which it depends). Evidently, "adsorbent" should be replaced with **either** "sorbent material" **or** "solid crystalline sorbent material". There is no basis for "said **phyllosilicate**" (emphasis added), as recited in line 2 of claim 24, either in claim 24 itself nor any preceding claim (noting that claim 24 currently depends upon missing claim 23, as discussed in the next paragraph). There is no basis for "said solid **sorbent** material" (emphasis added), as recited in line 1 of claim 29, either in claim 29 itself or claim 26 (upon which it depends). Evidently, "sorbent" should be replaced with **either** "adsorbent" **or** "sulfur oxide absorbent". There is no basis for "said solid sorbent/**catalyst**" (emphasis added), as recited in the last line of claim 32, either in claim 32 itself or claims 30-31 (upon which it depends), while claim 31 itself may **also** be considered confusing due to the phrase "having an oxidation **catalysis**... disposed thereon" (emphasis added). Replacing "catalysis" with "catalyst" in the penultimate line of claim 31 would overcome this rejection, in regards to claims 31 and 32. Appropriate correction of all aspects of this rejection is required.

20. Claims 24 and 25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Said claims are considered vague, indefinite, and/or confusing, in that each depends upon missing claim 23. Based upon the original set of claims, dependency upon claim 22 has been presumed for the remainder of this action.

Appropriate correction is required.

***Prior Art Rejections of New Matter Claims 19-29 and 33-35***

21. It is noted for the record that these claims have been **fully** considered as currently presented (i.e., including the new matter discussed in paragraph 17. above), per MPEP § 2163.06, and no prior art has been found that teaches or would have suggested processes, per instant independent claims 19, 26 and 34, or compositions, per instant independent claim 34. **However**, these claims have not been included in the statement of allowable subject matter set forth below, given that, again, each is subject to the 35 U.S.C. § 112, first paragraph (new matter), rejection set forth *supra*.

***Allowable Subject Matter***

22. Claim 30 is considered allowable over the prior art of record.

23. Claims 31 and 32—**ultimately dependent upon claim 30**—would be allowable *if* **rewritten to overcome the 35 U.S.C. § 112, second paragraph, rejection, as set forth in paragraph 19. above.**

24. The following is a statement of reasons for the indication of allowable subject matter: Upon reconsideration of applicant's admitted prior art—now summarized via the preambles of instant independent **Jepson** claims 19, 26 and 34 (per MPEP § 2129 III.), **as well as** the teachings of the prior art of record—including Wright et al. '602, it is **agreed** that the prior art of record fails to teach or to have suggested processes **for sulfur oxide abatement** comprising the **specific** limitations recited in applicant's independent claim 30. In particular, it is now **agreed** that, since Wright et al. '602 "discloses the use of phyllosilicate material as **cracking catalysts**, **not as sulfur oxide sorbents**" (see remarks

Art Unit: 1754

accompanying applicant's amendment at p. 9, last full sentence, emphasis added), one of ordinary skill in the art would **not** have been motivated to have used the Wright et al. '602 phyllosilicate materials as a "solid sorbent material to remove sulfur dioxide from... gas", per instant claim 30, irrespective of what is recited in applicant's Jepson claims. Again, there is simply no teaching nor suggestion in Wright et al. '602, nor in the remaining prior art of record (including that cited on the enclosed PTO-892 (an English translation of previously cited JP 49-94591<sup>1</sup>)), to have used the **specific** phyllosilicate materials of instant claim 30—namely, those "having alternating silicate and brucite layers and containing about 10-30 weight percent magnesium oxide"—in processes **for sulfur oxide abatement. Therefore**, claim 30, plus its dependent claims 31 and 32 (if rewritten in accordance with paragraph 23. above), must be deemed allowable over the prior art of record.

### ***Conclusion***

25. Applicant's amendment necessitated the new grounds of rejection (i.e., the 35 U.S.C. § 112, first and second paragraph, rejections set forth in paragraphs 17., 19. and 20. above) presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR § 1.136(a).

26. **A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory**

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<sup>1</sup> Note that this translation reveals that this reference does **not** teach the use of simply serpentine and/or chlorite for cleaning waste gas but rather their use **post-calcination, so as to form** "corderite or mullite,... or steatite, forsterite, ... etc." (see especially p. 3, last sentence of last full paragraph).

**action is mailed, and any extension fee pursuant to 37 CFR § 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.**

27. Any inquiry concerning this communication or any earlier communications from the examiner should be directed to Ardith E. Hertzog at telephone number (571) 272-1347.


The examiner can normally be reached on Monday through Friday (from about 8:00 a.m. - 4:30 p.m.).

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman, can be reached at (571) 272-1358. The fax phone number for the organization where this application is assigned is 703-872-9306.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. For any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
AEH

January 18, 2005

  
STANLEY S. SILVERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700